Worksheet 8-11:

Think:

a) Relationship between Tar and CO

b) Variables: Tar → Quantitative (mg)

CO → Quantitative (mg)

Who: 10 brands of cigarettes

What: tar, CO content

When: N/A

Where: N/A

Why: Determine relationship between tar and CO content

How: Testing cigarettes

c) Scatterplot

Points are straight enough

No outliers

Show:

a) STAT → CALC → 1: 1-Var Stats

Do this twice; once for Tar, once for CO

Tar: $\bar{x} = 13.95$ mg

$Sx = 6.53$ mg

CO: $\bar{x} = 13.66$ mg

$Sx = 4.70$ mg

b, c, d)

STAT → CALC → 8: LinReg(a+bx)

$a = 3.83$ mg y-intercept

$b = 0.70$ slope

$r = 0.97$

e) $\hat{y} = a + bx$

$\hat{CO} = 3.83\text{ mg} + (0.70)Tar$

Tell:

Because we have a strong correlation, there is very high association between tar content and CO content.

Worksheet 8-13:

1. $b = \frac{r s_y}{s_x}$ [sheet is wrong!]

$$= \frac{(0.694)(56.37 \text{ dollars})}{497.8 \text{ miles}}$$

$$= 0.078 \text{ \$/mile}$$

(get this from the calculator)

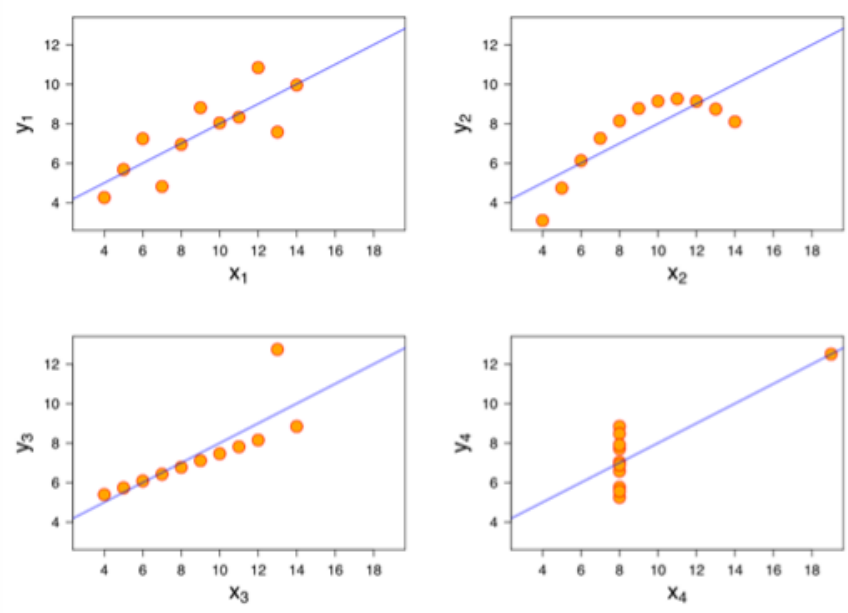
2. (also get from calculator)

$$a = \bar{y} - b\bar{x}$$

$$= 244.3 \text{\$} - (0.078 \text{\$/mile})(853.7 \text{ miles})$$

$$= \text{\$}176.92$$

calculator → \$177.22



Mean = 7.5, Variance = 4.12, Correlation = 0.816, Regression Line: y = 3 + 0.5x

Strong: ± 0.7 to ± 1.0

Moderate: ± 0.4 to ± 0.7

Weak: 0 to ± 0.4